

USB Type-C DFP 3.0A Controller with BC1.2 Auto-Detection and Adjustable Over Current Protection

FEATURES

- 3.0V~5.5V Single Supply Operation.
- Fully Autonomous Type-C Controller Support Type-C Version 1.2.
- VBUS Switch Control.
- Adjustable Over Current Protection.
- Support Type-C DFP 3.0A Current
- Automatic USB charger Identification Circuit.
- Support Apple® 2.7V/2.7V Fast Charging Mode.
- Support Samsung® 1.2V/1.2V Fast Charging Mode.
- Support BC1.2 & YD/T 1591-2009 Charging Mode.
- Available in MSOP10 Package.

APPLICATIONS

- Power Adapter
- Travel Charger
- Wall USB Charger
- Power Bank

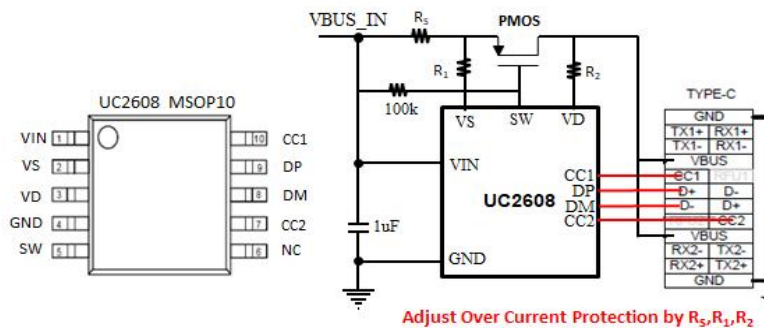
DESCRIPTION

The UC2608 is an autonomous source only Type-C controller optimized power chargers and mobile chargers. It broadcasts the available current of the charger over CC1/CC2 using the USB Type-C standard and prevents VBUS from being asserted until a valid connection has been verified. It can be used for up to 16.5W charging using Type-C protocols.

UC2608 integrated automatic USB charger identification circuit allow mobile power supply, In-Car charger, USB wall adapters, travel chargers, and other dedicated chargers to identify themselves as a USB dedicated charger to USB devices.

UC2608 can achieve adjustable over current protection by adjust R_s , R_1 and R_2 .

PACKAGE AND SIMPLIFIED APPLICATION

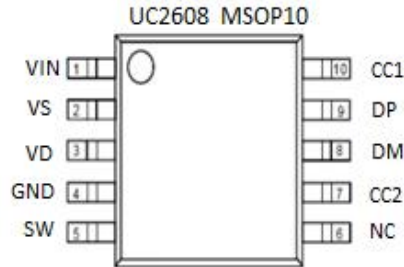


ORDERING INFORMATION

Part Number	Package Type	Package Qty	Op Temp(°C)
UC2608	MSOP10	3000	-40~85

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PINOUT



PIN FUNCTIONS

NO.	NAME	TYPE ⁽¹⁾	DESCRIPTION
1	VIN	P/I	Power supply/Input voltage connected to Power Switch; connect a 1 μ F or greater ceramic capacitor from IN to GND as close to the IC as possible
2	VS	I	Sense Voltage, connect source of PMOS
3	VD	I	Connect drain of PMOS
4	GND	G	Ground
5	SW	O/I	Output Control for VBUS
6	NC	NC	No Connection
7	CC2	O/I	Analog input/output that connects to the Type-C receptacle CC2 pin
8	DM	O/I	DM data line to connector, input for hand-shake voltage from portable equipment high impedance while disabled
9	DP	O/I	DP data line to connector, output for hand-shake voltage to portable equipment, high impedance while disabled
10	CC1	O/I	Analog input/output that connects to the Type-C receptacle CC1 pin

(1) G = Ground, I = Input, O = Output, P = Power

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ABSOLUTE MAXIMUM RATINGS ⁽¹⁾

Over recommended operating free-air temperature range (unless otherwise noted)

PARAMETER		MIN	MAX	UNIT
Supply Voltage Range	V _{IN}	-0.3	7.0	V
Input voltage range	DP,DM,CC1,CC2	-0.3	5.8	
ESD rating, Human Body Model (HBM)	V _{IN} ,		5.5	kV
	DP, DM, CC1,CC2		5.5	
Operating Junction Temperature	T _J	-40	125	°C
Storage Temperature Range	T _{stg}	-65	150	

(1) Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under Recommended Operating Conditions is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

THERMAL CHARACTERISTICS

Over operating free-air temperature range (unless otherwise noted)

THERMAL METRIC			UNIT
θ_{JA}	MSOP8 Package thermal impedance ⁽¹⁾	128	°C/W

(1) The package thermal impedance is calculated in accordance with JESD 51-7.

RECOMMENDED OPERATING CONDITIONS

PARAMETER		MIN	MAX	UNIT
V _{IN}	Input voltage of IN	4.5	6.5	V
V _{DP/DM}	DP data line input voltage		5.5	
I _{DP/DM}	Continuous sink/source current		±10	mA
T _J	Operating Junction Temperature	-40	125	°C

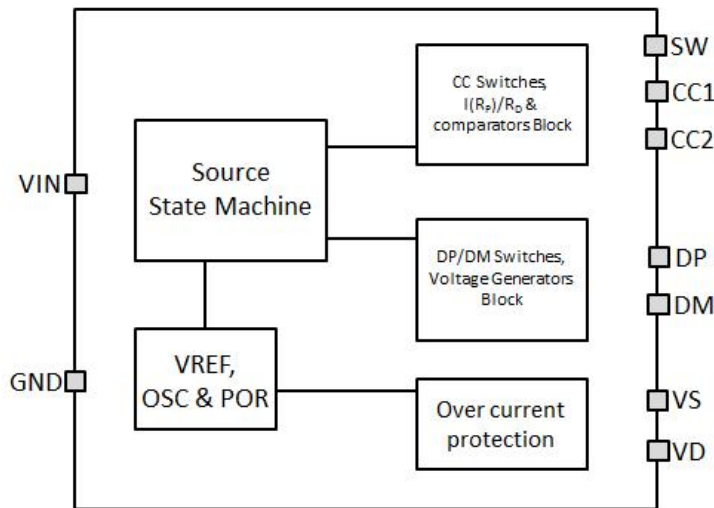
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ELECTRICAL CHARACTERISTICS

Conditions are: $T_A = 25^\circ\text{C}$, $V_{IN} = 5.0\text{ V}$. Positive current are into pins. All voltages are with respect to GND (unless otherwise noted).

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
SUPPLY CURRENT						
I_{IN}	VIN ON supply current			230		μA
I_{INI}	VIN idle supply current	CC1/CC2 floating		0	5	
BC 1.2 DCP MODE						
R_{DPM_SHORT}	DP / DM shorting resistance			125	200	Ω
IPAD MODE 2.4A Mode						
V_{DP_IPAD}	DP output voltage		2.5	2.7	2.9	V
V_{DM_IPAD}	DM output voltage		2.5	2.7	2.9	V
Galaxy Tab MODE						
V_{DP_GAL}	DP output voltage		1.1	1.2	1.3	V
V_{DM_GAL}	DM output voltage		1.1	1.2	1.3	
UFP Mode						
$I_{SRC_3.0A}$	Sourcing current		297	330	363	μA

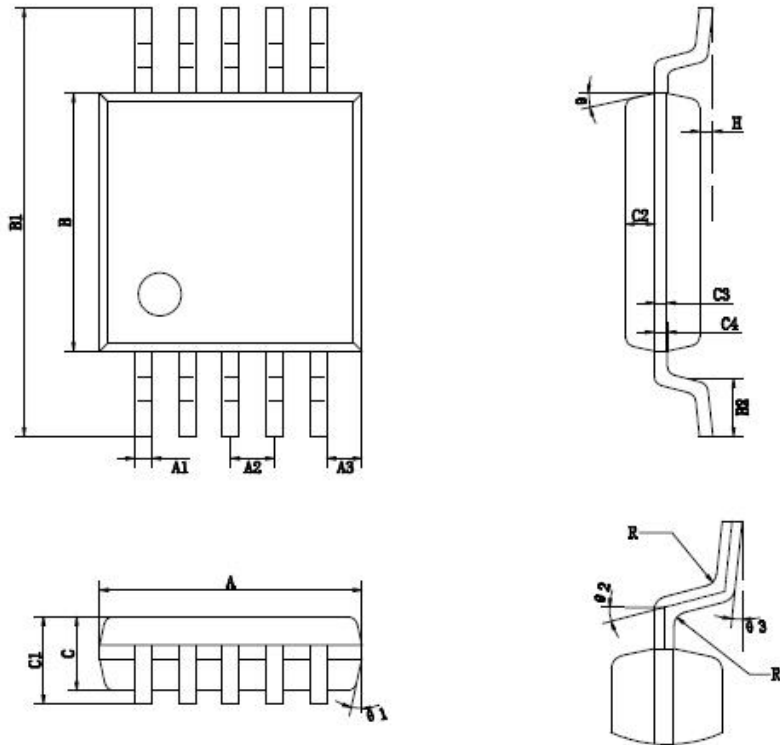
BLOCK DIAGRA



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PACKAGE INFORMATION

MSOP10



标注	尺寸	最小(mm)	最大(mm)	标注	尺寸	最小(mm)	最大(mm)
A		2.90	3.10	C3		0.152	
A1		0.18	0.25	C4		0.15	0.23
A2		0.50TYP		H		0.02	0.15
A3		0.40TYP		Ø		15° TYP4	
B		2.90	3.10	Ø1		12° TYP4	
B1		4.70	6.10	Ø2		14° TYP	
B2		0.45	0.75	Ø3		0° ~ 6°	
C		0.76	0.96	R		0.16TYP	
C1		---	1.10	R1		0.16TYP	
C2		0.328TYP					